

COMPUTERWORLD

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PL/I Is Hard to Learn, Error-Prone, AF Tod

By a CW Staff Writer

WASHINGTON, D.C. — PL/I programs, while they may take less time to code, usually take longer to check out because of programming errors, according to a 283 page report prepared for the Air Force.

Compared to Cobol and Fortran, PL/I has just as many error-prone rules, is unsuitable for use by the nonprofessional programmer (which seems to mean anyone without mathematics training), and is harder to learn. In comparison with Cobol, there was no evidence that PL/I was more than "about

equal" for business data processing applications.

Thorough Investigation

The report was written by Raymond J. Rubey and other staff members of Logicon, Inc., of San Pedro, Calif., after one of the most thorough investigations ever undertaken of the properties of the high level languages. The study involved the selection of programmers with equivalent experience in PL/I and one of the other languages (Cobol, Fortran, or Jovial), the predefining of standard programs, and the writing and checking out of each program in PL/I and another language. Accurate records of system problems (as opposed to

program problems) were kept. After each test, the programmer was asked to rate the two languages in various ways, such as which had more error-prone format rules. Analysts then checked these responses in the light of the programmer's background and overall competency and came up with their own opinions.

The results showed that while PL/I had many attractions, there were significant areas where other languages maintained a superiority.

Advantages, Deficiencies

Attractions of PL/I were conciseness and suitability to the professional programmer. (All

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UCC Making Renewed Bid To Annex Common Carrier

By a CW Staff Writer

DALLAS — University Computing Co., carrying out its announced intention to set up its own common carrier, has created a new subsidiary, Microwave Transmission Corp. The subsidiary, in turn, has agreed in principle to acquire Trans American Microwave, Inc., a Los Angeles firm that operates a microwave link between Texas and San Francisco. The \$1.5 million purchase

is subject to approval by the Federal Communications Commission.

UCC, after making an unsuccessful bid last spring to buy a controlling interest in Western Union, announced Aug. 5 that it would set up its own common carrier.

University Computing, which operates what it describes as a multinational computer utility network, has also moved to strengthen its financial position through a merger with the Gulf Insurance Co. (See story on page 12).

Expansion Planned

Microwave Transmission will concentrate on the development of a microwave transmission system and communications business in several sections of the country, UCC announced.

The new subsidiary "reflects our continuing interest in microwave systems, the growth of CATV, and other special purpose communication needs of the future," said UCC President Sam Wyly. TransAmerican currently serves a number of cable television companies on the West Coast.

Charles J. Wyly, Jr. has been (Continued on Page 16)

Qualitative Language Comparison Summary

Key: P — Programmer's choice
A — Analyst's choice
O — PL/I
● — Other language
— No preference

Language Attribute	PL/I - COBOL			PL/I - FORTRAN		
	OVERALL	ALGOL68	UML	TIME	UML	UML
1. Suitability to this problem	●	●	●	●	●	●
2. Suitability to implementation problems	●	●	●	●	●	●
3. Suitability to large programs	●	●	●	●	●	●
4. Generality	●	●	●	●	●	●
5. Ease of learning	●	●	●	●	●	●
6. Ease of use	●	●	●	●	●	●
7. Relative between generality and simplicity	●	●	●	●	●	●
8. Consistency	●	●	●	●	●	●
9. Relationship to this problem	●	●	●	●	●	●
10. Relative between conciseness and understandability	●	●	●	●	●	●
11. Conciseness	●	●	●	●	●	●
12. Productivity in writing this program	●	●	●	●	●	●
13. Relative between ease of reading and writing	●	●	●	●	●	●
14. Ease of reading and use for this problem	●	●	●	●	●	●
15. Ease of learning and use for this problem	●	●	●	●	●	●
16. Suitability for non-numerical programming	●	●	●	●	●	●
17. Suitability for professional programming	●	●	●	●	●	●
18. Relative between conciseness and understandability	●	●	●	●	●	●
19. Conciseness	●	●	●	●	●	●
20. Relationship to this problem	●	●	●	●	●	●
21. Ease of use in statement modification	●	●	●	●	●	●
22. Ease of use in manipulating input/output control	●	●	●	●	●	●
23. Ease of use in statement modification	●	●	●	●	●	●

GROSS PAYROLL: Processes payroll transactions against employee master, prepares wage report.

ALGOL68: Processes editin data cards, builds data file, edits for format validity, prints error messages.

UML: Simple simulated interactive system for the evaluation of simple

TIME: Simulates the behavior of a multiprogramming system and gives status reports on the system at key times.

UML: Computes the analytical terminal data position and a selected guidance parameter at a given point on a vehicle trajectory.

First Centuries

DAYTON, Ohio — The first production models of the new NCR Century series of computers were delivered to NCR centers around the country last week. Immediately after deliveries had been made to a number of home office departments. The first customer deliveries are expected to be made next week, Computerworld has learned.

Paul Lippert, assistant vice president in charge of Century products, said that he thought that this would help reduce the "incredibly gap" quite a lot. "How people can come into our centers and see the Century is real," he said.

IBM to Release Call 360/ Basic 'As Is'

Specific to Computerworld

WHITE PLAINS, N.Y. — The Call 360/Basic software, which IBM has been using in its service centers for some months, will be released to IBM customers "as soon as it is ready," an IBM spokesman told Computerworld this week. Its release is being delayed pending completion of the documentation, he said.

How IBM installations are able to use the software and to provide reliable service to their customers under these "unready" conditions was not explained.

'As Is' Again

When software is released, it will be on an "as is" basis, the same condition attached to the

forthcoming release of Call 360/DataText which was announced last week [CW, Oct. 2].

DataText Delayed

Release of the DataText software also is being delayed "until after the documentation is complete," the IBM spokesman said this week. He refused to estimate when this might be.

When Basic and DataText are released, it is unclear whether IBM will keep users informed of changes. IBM's statement was that "alterations to, and maintenance of, programs are the customer's responsibility."

Previous to the announcements, both Basic and DataText had been considered proprietary products. Requests for them from IBM customers had been rejected.

'Poverty' School Plans to Make Profit

By a CW Staff Writer

NEW YORK — An EDP training school with a very different three look has been opened in the South Bronx. The school has three aims: to teach the hardcore unemployed and underemployed, to train the more fully than other schools, and to make money doing it.

The Heurion Institute, which opened late in August, is the first of 40 such schools expected to open in ghetto areas across the country. All except the South Bronx and a future Brooklyn

school are expected to be franchised operations run by the ghetto residents.

The institute teaches a course in computer input, technology, which covers keypunch, CRT data display, keyboard to tape, and Teletype entry systems.

High Scores

To qualify, applicants must score at least 110 (the New York City average) on the keypunch aptitude test, according to Thomas Mann, director of the institute. Most applicants score from 150 to 210, he said.

Tuition for the course, which can be taken either as an eight week day course or a 16 week night course, is \$366. But the school doesn't turn anyone away just because they can't pay the fee, Mann said.

The school plans to make its profit by charging a \$400 employment fee to companies which hire its graduates. In return for paying no more than they would to an employment agency, the companies will get employees with a minimum speed of 7000 strokes an hour who are familiar with all types of input devices, Mann said.

"These people will be prepared for the future as well as the present," Mann said.

Schools will open next in Harlem, Watts, Detroit, and Newark.

No Grants

Heurion Institute, a subsidiary of Heuristic Concepts, Inc., a real-time systems and display consulting firm, is not using any public funds and doesn't want to, Mann said. The belief is that ghetto people will respond better if they know they are becoming involved with private enterprise rather than another government program.

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On the Inside

Unexpected Anniversary Creeps Up on Industry

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Credit Group Gets Use of ITT Service

HOUSTON — International Telephone and Telegraph Corp. and Associated Credit Bureau, Inc., have agreed to provide the 2100 ACB member business with computerized credit reporting services.

The new program will provide credit bureaus affiliated with ACB a choice between using time shared computer services at nearby computer centers operated by ITT Data Services and individually owned computers operated by the ITT division or credit bureaus.

ITT in cooperation with Credit Bureau Automation, a wholly owned computer services subsidiary of ACB, will complete the development of this new computerized credit reporting system which is custom designed to meet the specialized requirements of credit bureaus.

The ITT/ACB system of computerized credit reporting will provide consumers and credit bureaus with improved speed and efficiency in credit reporting, the announcement said.

"This computer system also will make a substantial contribution to the protection of consumer privacy," said John L. Spafford, ACB executive vice president. "It will provide increased efficiency in file maintenance and improved file security through information design in computer."

IBM Forms New Divisional Group

ARMONK, N.Y. — Three IBM divisions (Office Products, Federal Systems, and Information Records) and two subsidiaries (Service Bureau Corp. and Science Research Associates, Inc.) have been put under a new group executive, Vice President Robert W. Hubner.

Hubner formerly was marketing vice president, a post he had held since 1965.

IBM also announced that Robert H. Howe has been appointed director of marketing.

Howe, director of market plan-



Vice President Don R. Carpenter makes a final inspection of a reconditioned 514 reproducing punch at the new TLW center.

System Wins Franklin Institute Medal

PHILADELPHIA — The inventor of a method for automatic identification of rolling railroad cars has been named to receive the 1968 George R. Henderson Medal of The Franklin Institute, it was announced by Dr. Wynn Laurence LePage, chairman of the institute's board of managers. Francis H. Stites, senior engineering specialist with the Synva Co., a subsidiary of General Telephone & Electronics, will be presented the award Oct. 16 as part of the institute's Medal Day ceremonies. The Henderson medal is bestowed for "meritorious inventions or discoveries in the field of railway engineering."

Known as the Kartak automatic car identification system, Stites' invention affords the country's railroads instantaneous car reporting, economically, on a

uniform basis in the United States, Canada, and Mexico. With the system, each railroad can automatically locate all of its rolling stock.

Car Coding

The Kartak system employs highly reflective labels, newly developed vertical scanners, and decoders. Vertical labels, with horizontal bands of red, white, and blue, are fastened to the sides of freight cars, cabooses, and locomotives by adhesive backing. The material reflects light 200 times brighter than any known paint.

Color combinations and relative height of the bands signify essential information such as owner, shipper, and destination that is read by the stationary scanner and interpreted by the decoder. The scanner is located along the tracks at key points — entrances and exits of railroad terminals and interchange points, among others. It can read each car label anywhere within a 9-foot height and as many as four times while a train travels 100 miles per hour. Multiple scans provide a built-in check against error.

Information is passed from the scanner to the decoder, which is the indoor portion of the system. The decoder turns the scanner on and off automatically, analyses incoming data, and translates data from the label into a readable printout.

Stites developed his version of an ACI (automatic car identifica-

tion) system on behalf of Synva, which competed with other firms under specifications from the ACI Ad Hoc Committee, Data Systems Division of the Association of American Railroad. Field tests run by the association's research center on the Penn-Central Railroad, and subsequent laboratory tests, led to the recommendation from the AAR's board of directors that the Kartak system be accepted as the standard system for use on all railroad equipment in the United States, Canada, and Mexico.

Notice to Readers

We would appreciate it if you would examine your new mailing label. Computerworld has a new computerized subscription fulfillment program that is now in its second week on-line. The conversion process has gone smoothly but, of course, there were errors. We hope that most of these will be corrected by next week. If there is an error on your label, please forward it, with the correction, to: Circulation Department, Computerworld, 60 Austin Street, Newton, Mass. 02160.

customer modifications. Previously, facilities for these services had been leased by TLW. Williams said the facility will accelerate delivery schedules and improve quality control "insuring that our equipment will remain under the manufacturer's maintenance agreement."

T/W's new plant covers 7000 square feet. In addition to its engineering and mechanical departments, it provides warehousing and sales office space for the firm's banking, motor freight, insurance, and hospital marketing divisions. Other sales offices and corporate headquarters are located in Atlanta's Executive Park.

Williams said that the new plant would also meet the requirements of TLW's principal subsidiaries, International Automation Co. and International Computer Leasing Co.

'Street' System Eases Broker's Paperwork Load

Special to Computerworld

NEW YORK — A software approach to the back office paperwork problem, which has forced Wall Street to stop trading on W & D weekdays, has been installed by Computer Applications, Inc. at L.M. Rosenthal & Co., Inc.

Called the Street system, and currently based on a PDP-8/i computer, it operates through a set of keyboard terminals and can handle 100,000 transactions an hour.

Harvey A. Dubner, vice president of Computer Applications, explained that the idea was to come up with the simplest possible system that would solve 90% of the specific problems and allow the computer to be fed with additional information, such as the names of frequently traded bonds, when necessary, so that all trading transactions could be processed.



R.W. Hubner

R.H. Howe

Error Falsely Blamed on Computer

Special to Computerworld

NEW YORK — The error originally blamed on "a malfunctioning computer" that forced The Wall Street Journal to close on Sept. 19 is a corrected version of the entire Sept. 17 over-the-counter stock market quotations could more correctly be blamed on "a malfunctioning computer operator."

Robert Steinberg, vice president in charge of computer operations at Scanlon Electronics, Inc., the company that runs the quotations for United Press International which in turn sells them to

The Wall Street Journal — told Computerworld that the error was caused when an operator chose the wrong option during tabulation.

The operator had an option for dumping or loading information during the run. The operator, by mistake, loaded out-of-date information, he said.

The routine has been changed so that the option is no longer available, Steinberg said. It was the first major mistake since the company began compiling the information a year ago, he said.

CALENDAR

Oct. 14-16, New Orleans, La. — Fourth Annual Meeting of ECHO. Contact: Richard A. Crenshaw, Director of Data Processing, Hillcrest Medical Center, 1120 S. Utica Ave., Tulsa, Okla. 74104.

Oct. 20-23, St. Louis, Mo. — Systems and Procedures Ann. International Systems Marketing. Contact: Richard L. Irwin, SP, 24587 Bagley Rd., Cleveland, Ohio 44138.

Oct. 23-25, Gathersburg, Md. — Second Annual Symposium of the American Society for Cybernetics. Contact: Ralph Constantine, SAC Secretary, Univac, 2121 Wisconsin Ave., N.W., Washington, D.C.


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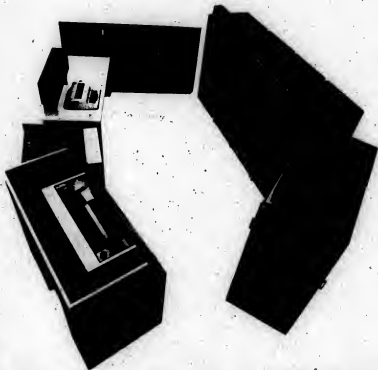
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Editorials

A Worthwhile Target

The plaintiffs in the Los Angeles welfare case seek what they have termed a "fail-safe" system. Their request refers to programming as well as to hardware.

We all would like to see fail-safe programming. The question is: is there any reason why we can't have it?

Computer programming at the moment is not fail-safe. In spite of whose fault it may be, this is a fact.

Computerworld does not know if fail-safe programming is possible, but it does believe that it is a very worthwhile goal. We recommend that every programmer and data processing manager personally consider the problem and use the concept at least as a target.

A Matter of Discrimination

Donn Parker's letter taking us to task for anthropomorphizing computers is very apropos.

His suggestion is that we try to stop any usage which appears to be capable of misleading people into thinking that computers are alive. He quotes our own headlines and articles like "The Computer Will Help..."

This appears to us to go too far. In the case in point the computer did help. Just like a timetable helps a traveler, or a stopwatch helps an orator. Any misunderstanding which occurs results from ignorance—not from misuse of language.

Where the language is misused is where moral judgments such as "erotic" and active items such as "erotic" are ascribed to computers.

A campaign simply aimed at dangerous anthropomorphizing would stand a much greater chance of acceptance than one which tries to ban all anthropomorphizing.

An Unexpected Anniversary
Has Life of Generations Doubled?

By a CW Staff Writer

October, 1968, will bring an important and unexpected anniversary. It marks the four year, seven month point since the announcement of the System 360 in April, 1964. The time from the announcement of the first IBM 1401 system until they were made obsolete by the 360 announcement was—four years and seven months!

So the 360 already has lasted as long as the entire lifetime of the 1400 series, which can reasonably be thought of as the second generation systems.

And yet there is little call for the replacement of the 360 by another generation. There are various manufacturers claiming "fourth generation" hardware or software, and they are providing some very useful innovations—but by and large, "third generation" is still an adjective which conjures up the idea of being up to the minute, modern, etc.

There is little talk in the gossip columns of the technical press of the imminent obsolescence of the System 360—as there was in 1963 and 1964 regarding the 1400 series. The very quietness of the anniversary shows its importance.

Generations Lengthening

From a user's point of view, it looks as though the generations are lengthening—so that it has more time for planning. This is important. It also means that the lifetime of equipment will tend to be longer, so that the extended depreciation periods are more valid. This means that the money saving, third party leasing operations are more inviting than they were, because the equipment just isn't about to become obsolete so quickly. It means that third party rental is, people other than the hardware manufacturers) operations in general are becoming more practical, because there is time for outside firms to come to grips with specific problem areas, and to produce marketable answers, and to have sufficient time to secure a profit for themselves.

From IBM's point of view, the scene is one of great success—both of hardware and of planning. At this point IBM appears to have maintained its position in the industry, neither appreciably losing any of its domination nor gaining enough to force another antitrust suit against it, despite the fact that it holds a much more dominant position in computing than, say, General Motors does in the automotive industry. Exactly what IBM's current position is, is not clear. During the last two months, for instance, it has been reported in a major computer newsletter that IBM has increased its percentage by 3% to 73%—and in an equally prestigious monthly it was estimated that IBM was losing a point or two. Really its position, and that of the rest of the industry, looks much as it did in 1964, and it appears that the most precious comment made at the time of the announcement occurred when Jack Hillegas, then editor of the Auerbach Standard EDP Reports, commented in his introduction to the 1964 Sys-



An IBM 360/40 at work in the U.S. Department of Agriculture.

tem/360 report that the system design appeared "well calculated to maintain IBM's position" in the industry.

And it has done so.

Success—Through Planning for Failures

Not that there were no failures. In fact, much of the 360 line that IBM planned, turned out to be failures and had to be replaced. And there were omissions as well—vital omissions. The lack of any emulation or compatibility in the original line (except for the 1401/Model 30 case) turned out to be a disastrous underestimation of the problems involved in changing systems. Even now, many, if not most, installations which have made the change-over are still using second generation programs. But these were simply errors of calculation—not of planning. And planning had taken the possibility of such errors into account. Pulling the 2, 3, 30, 60, 62, and 70 out of the line and replacing them with marketable systems was handled without any disturbance to the 360 concept—the family concept which had been astoundingly marketed. Adding the 7000 series emulators was equally simple, using the microprogrammed technique which itself was the basis of the practicality of the "family" idea. Both possibilities were implicit from the very beginning in the marketing plans—both were necessary and both were successful.

Questions to Be Answered

But these are mere details—technical footnotes to history—beside the key fact that the overall result has been a clear lengthening of the time between generations while preserving the IBM position in the industry at optimum level. These are the two important items to be noted at this anniversary. These are what count. And these are the points on which we must concentrate—how it was done, and what it implies.

Next week we will look in some detail at the first point—how it was done.

Letters to the Editor

Anthropomorphism

To the Editor:

Your editorial "Newweek Horizon" (CW, Sept. 18) describes a serious problem—the gross lack of understanding of computer technology on the part of the public which has created the giant, electronic brain syndrome. You pointed out a typical example of one source of the problem by quoting a news magazine's per-

sonification of computers.

However, we who create our technology are as much to blame as the popular press. We do little to dispel the personified image of computers and even encourage it. Consider the following quote from Computerworld:

"A computer will help students to choose more compatible roommates..."

"A computer has now joined the search for Camelot..."

"But Your Honor, the Computer said..." (Headline)

"Williams... credited his success to a computer in London that advised him on what course to follow..."

"Multi-Lingual Computer Adapts Itself to Problem" (Headline)

"Mountaintop Airport Challenges Computer" (Headline)

"A computer hidden inside a century-old Cape Cod house has begun helping scientists to understand some of the mysteries of the sea."

(Continued on Page 5)



COMPUTERWORLD
THE NEWSPAPER FOR THE COMPUTER COMMUNITY

THU. REG. U.S. Pat. Off.

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Letters to the Editor

(Continued from Page 4)

I have tried for four years without success to get ACM to establish a public relations and information function to correct this giant electronic brain image of computers which mystifies and terrifies the public. Several ACM chapters have started educational programs to explain our technology in responsible, professional ways to the public, but we need a coordinated nationwide effort which could be successful in spite of Clarke's Third Law: Any sufficiently advanced technology is indistinguishable from magic.

Donn B. Parker

Los Altos, California

See editorial comment. Ed.

What Shall We Call Them?

To the Editor:

I do not view the recent actions of free enterprise, noncomputer companies entering the highly competitive data services industry as a phenomenon [CW, Sept. 23]. Diversification is nothing new in our industrial society. There is nothing prohibiting them from exercising management decision making to add further income to their corporate structures. They must still operate in a fair and competitive market and measure up to the demands of this market.

My concern is not with their size, but rather the continued dilution, by suggestion, of the total data services industry through the application of another name — another splinter group.

The key word is service — whether it be machine operations, software, time sharing, commercial or scientific application, or any combination.

We are really kidding in on information processing whether it emanates from independents, manufacturing oriented service centers, software companies, or the recent entry of companies offering diversification.

The goals are the same — to strengthen the total industry. It cannot be accomplished through new labels.

J.L. Dreyer

Executive Vice President

Adapco
New York

CW's point was not that the services they offered would be different from the services users can obtain from members of the Association of Data Processing Service Organizations. It was simply that a new (from the financial analyst's point of view) source of these services had appeared, and that there was no (financial analyst's) criterion into which they could be put. Ed.

Computerworld welcomes comments from its readers. Preference will be given to letters of 250 words or less. Computerworld reserves the right to edit letters for purposes of clarity and brevity. Letters should be addressed to: Editor, Computerworld, 60 Annetta St., Newton, Mass. 02160.



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"COMPUTER - WARE"

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Software Wanted pg. 11

Buy, Sell, Swap pg. 14

Time for Sale pg. 14

TLW Computerworld Corner

COMPUTERS FOR SALE

INDUSTRY

Item 1: 360/30 MOD F, 1051-1, 1052-4. AVAILABLE 1/1/69.

Item 2: 1401 C4, 1402-1, 1403-2, 1406-1, 4-7291's. Advanced Programming, Print Storage, Numerical print, Hi-Lo-Equal, and others. AVAILABLE 1/1/69.

Item 3: 1410-40K, 1415, 3-1414's, 4-729's, 1402, 1403. AVAILABLE 60 days.

Item 4: 1401 C4 BK with 1402, 1403 and 3-1311's. AVAILABLE 90 days.

Item 5: IBM 1620-20K and 40K. Additional instructions. Auto Divide Indirect Address. 1622-1, 1623-1. AVAILABLE 30 days.

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Telemax Service
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Display Systems

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Telemax, Inc. has selected Sanders Associates, Inc., Nantua, N.H., as the prime supplier of the Sanders 720 data display system for a computer reservation system to confirm hotel and motel reservations, car rentals, package tours, airlines, and other aspects of the travel industry. The system links subscribers to a centralized computer center in East Rutherford, N.J., where reservations are processed in a real-time environment. The Equitable Life Assurance Society, New York, has ordered a second IBM 360/65 with a 2314 disk drive for its home office EDP installation. The company has a nationwide data communications network linking each of its cashier offices with the home

Orders
and
Installations

Memorex Forms Japanese Sales, Service Subsidiary

SANTA CLARA, Calif.—Memorex Corp. has formed a joint venture sales company with Kenamatsu-Gotho, Ltd., Tokyo, to be named Nihon Memorex K.K. (Memorex Japan, Ltd.). The new venture has received the approval of the Japanese Ministry of International Trade and Industry. Eugene L. Rogers, Memorex vice president, said Nihon Memorex will be a complete sales and service concern and not just an importing firm. One of its services is a tape certification and rehabilitation center.

Efficient Leasing Opens Two New Regional Offices
NEW YORK—Efficient Leasing Corp. has opened regional



offices in the Hanna Bldg., Cleveland, and 1100 Gendron Ave., Los Angeles, according to Jerome Kleinfeld, president. William Newman will head the Cleveland office, and Alan Burke has been appointed regional manager of the Los Angeles office.

Avco/Huntville Retains Equipment Sales As Agents
HUNTSVILLE, Ala.—

Avco/Huntville has retained Equipment Sales Co., Hamden, Conn., as sales agent in the northeast to handle the sale of data acquisition systems, structural loading systems, and other standard digital data system products. The agreement was announced by S.D. Moxley, manager of Avco's Huntsville operation, and Angus McArthur, head of Equipment Sales.

Avco Computer Opens Station in Cambridge

WILMINGTON, Mass.—Avco Computer Services has opened a remote station at 251 Vassar St., Cambridge. The new station is equipped with an IBM Model 20 remote job entry terminal connected to the main computers at the company's facility here. According to Dr. William F. Brown, director, the Cambridge terminal is part of a planned expansion program to make ACS's services available to more computer users.

Burroughs' Philadelphia Unit to Get New Computers

PHILADELPHIA—Under a long term, \$1.8 million lease, Burroughs Corp. will occupy the major portion of the ground floor commercial space of the Kennedy House as its office equipment sales branch. The move was necessitated to make way for a new highway.

Computer Learning Expands Its Norfolk Center

FALLS CHURCH, Va.—The Norfolk Computer Learning Center has added 1500 sq. ft. of space for a new computer laboratory, according to Michael Blondo, Norfolk director. The center trains men and women in data processing and computer operations.

Systams, Inc. Opens Regional Office

PROVIDENCE, R.I.—Systams, Inc. has opened an office at 76 Cambridge St., Burlington, Mass., to service the Boston area in data processing consulting work. Joseph C. Burrows, president, said the office will be directed by William R. Moriarty.

Automatic Data Processing To Open New Office

NEW YORK—Automatic Data Processing, Inc. will open a computer service center in the financial district. The firm handles bookkeeping and record keeping for the purchase and sale of securities for stock exchange firms. The new office will be located at 42 Broadway.

office. The network is controlled by IBM 7740 communications control units and uses 105 IBM 1050 terminal units.

American Computer and Communications Co., Newport Beach, Calif., has ordered one Univac 9400 and six 9300 computer systems valued at about \$1.5 million for a network of new computer centers. Installation is to be finished by the end of 1969. Seaboard Computer Co., San Francisco, has ordered 70 Honeywell Keytapes to be used to write computer input data directly on magnetic tape. The tapes are like keyboard. The devices are designed to replace punched cards as input media.

Babcock & Wilcox Co.'s research center in Alliance, Ohio, has ordered an EAI 680 analog hybrid computer for use in the simulation and study of scientific and engineering problems. The new unit will be part of an EAI 690 hybrid computing system now in use.

The State Life Insurance Co., Indianapolis, Ind., has purchased a Univac 9300 system for updating the records of policyholders on a daily basis. Scheduled for delivery next May, the system will include five magnetic tape units.

U.S. Steel's Gary Tube Works, Gary, Ind., has ordered a medium scale 1106-11 system for inventory control, production scheduling, and other manufacturing applications. Delivery is scheduled for next September.

Allied Datamation, Inc., Fairfax, Va., has placed an order for an IBM 1450 computer system to support a 1106-11 system for bank data processing. The University of Wisconsin, Madison, Wis., has acquired a Univac 1106-11 system valued at \$2.8 million. Complementing the new computer network will be high speed communication lines and several data terminals for solving complex engineering, scientific, and other problems involved in research and development work. Univac 1104C core processor machines and DCT 2000 communications terminals are in use to be connected to the new system.

Informatics Gets 'Pacer' Subcontract

SHERMAN OAKS, Calif.—Under subcontract to Planning Research Corp. for the Rome Air Development Center, Informatics Inc. will help develop, implement, and test Pacer, an on-line CRT console and computer based system being designed to assist photo interpreters and intelligence analysts in the correlation of current, historical, and collateral information. Initial implementation is expected to be accomplished in 18 months. The expanded system is scheduled for operation in three years.

Memory Systems

WALLED LAKE, Mich.—Scientific Control Corp., Dallas, has awarded a \$4.3 million contract to Bryant Computer Products for memory systems. Included in the contract were disk files, drum memory systems with controllers, and the design, development, and fabrication of a fast core memory system to connect the SCC 6700 time sharing computer system with the control processor and associated I/O controllers.

Univac to Share Design

ST. PAUL, Minn.—System design responsibility for the Advanced Surface Missile System for

CONTRACTS

the Navy's new class of DXG destroyers will be shared with Sperry Rand's Univac Federal Systems Division, General Dynamics Corp., and Hughes Aircraft Corp. The Univac system is designed to perform fire, weapons and missile control, and other systems command functions. The purpose of the program is to provide a new surface missile system with increased capabilities and reliable ship-board operation.

Time Sharing Service

MINNEAPOLIS, Minn.—Apache Corp. has selected Computer Time Sharing, Inc. to provide time sharing services for petroleum investment planning. The announcement was made jointly by Allan B. Pettit, CTS director of corporate development, and Phillip C. Byers, manager of investment administration for Apache.

Transistor Development

NEW YORK—Management Assistance Inc. announced that its wholly owned subsidiary, MAI

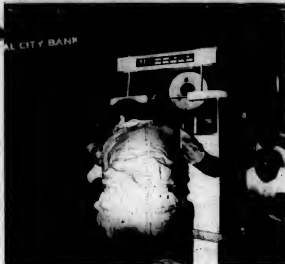
Equipment Corp. has been awarded "a multimillion dollar contract" for the design, development, and manufacture of data transmitters capable of capturing an operator's key strokes and converting them to codes on computer compatible magnetic tape.

Tactile System

LOS ANGELES—A subcontract of approximately \$900,000 to assist in the design and development of computer programs for the Army's Tactile system has been awarded by Litton Industries to Planning Research Corp. The purpose of the system is to increase fire support effectiveness through increased first round accuracy, better use of target information, and greater efficiency in determination of fire capabilities. The system will include a completely integrated network of computer centers located in various military levels of command within a field army.

Optical Digital Encoders

STONEHAM, Mass.—The Perkin-Elmer Corp. has awarded Dynamics Research Corp., an additional contract for \$701,276 to continue the development and fabrication of optical digital encoders.



A tape drive is trundled out of Citibank's headquarters at 399 Park Ave. on its way to 111 Wall St.



The job of reconnecting 10 miles of cables begins at 111 Wall St. Moving, installing, and testing took 80 hours.

Standard Names Western Data As Sales Agent

SHERMAN OAKS, Calif. — Standard Memories, Inc., a magnetic core memory systems manufacturer, has named Western Data Services, Inc. as sales and service representative.

Western Data, headquartered in Burbank, also has an office in Sunnyvale, which Dominie Inco, Inc. was recently named to head.

Standard Memories says its Micro-Stor and Ecom systems, that Western Data will handle, can be delivered in three weeks.

Downtown Data Processing Formed in New York City

NEW YORK — The formation of Downtown Data Processing, Inc. has been announced by Seymour S. Solov, president of Automated Personnel International Downtown, Inc. Located at 135 William St., the new firm will handle data processing requirements from keypunch to verifier service to computer time on a 24 hour, 7 day a week basis. Pick up and delivery services will also be included, the announcement said.

Digital Information Devices Formed in Pennsylvania

NORRISTOWN, Pa. — A new manufacturing company, Digital Information Devices, Inc., has been formed here and will develop a line of computer input/output devices and man-machine communications equipment.

The company claims proprietary nature and innovation in the equipment and sees no immediate direct competition in the field. Manufacturing operations are scheduled to begin early next year.

The company was founded by Data Packaging Co.-in-Cambridge, Mass., and a group of computer engineering personnel from this area: Leon J. Stasiak, president, formerly with Burroughs; Floyd E. Brunell, vice president of operations, formerly with Univac Division of Sperry Rand; and Data Packaging President Otto Morningstar, treasurer.

French Company to Market For Applied Data Research

PRINCETON, N.J. — Applied Data Research, Inc., a computer software and service company, has named Centre D'Analyse et de Programmation as its marketing representative for proprietary software programs in five European nations.

The announcement said that the Paris based firm will market ADR's proprietary software programs, including Autoflow, in France, Belgium, Holland, Switzerland, and England.

'And for Heavens Sake, Don't Trip Over Anything!'

NEW YORK — One hundred twenty units, making up eight complete computer systems, were recently moved from the First National City Bank's uptown headquarters at 399 Park Ave. to a new office building at 111 Wall St. The data processing equipment moved supplemented five computer systems already installed at 111 Wall St.

Citibank's equipment is used to handle stock

transfers, commercial loans, personal trusts, checking accounts as well as other applications. Nearly 1.6 million checks a day are processed by the bank using this equipment. "It was necessary to complete the move over a three day weekend so that the bank's entire data processing operations would function at the start of business Tuesday morning," said H. Lansing Clute, executive vice president.

The electronic equipment was carefully wrapped and crated in pre-board panels with braces for shipment to the new building. To complete the move with minimum delays, a logistical plan was prepared by Citibank, IBM, and Neptune World Wide Moving. Once in place, data processing equipment was tested by special diagnostic programs and oscilloscopes to insure proper functioning.

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Coding Sheet System 'Eliminates' Errors

A simple system that produces perfect coding sheets and eliminates erasing, crossing out, recopying, and arrowing has been announced. The system, called Programaid, consists of cardboard holders with plastic covers and special perforated coding sheets. To insert additional instructions, you simply tear the coding sheet along the proper line and insert the new instructions. Corrections can be made by tearing out the incorrect lines and replacing them or by simply inserting the corrected lines into the holder on top of the incorrect lines.

The basic price is \$20 for 25 holders and 30 coding sheets, with lower prices for quantity orders. The holders are reusable. Coding sheets are \$25 per 100 or \$240 per 1000. S. Bowworth & Associates, 9 Forest Dr., Plainview, N.Y. 11803.

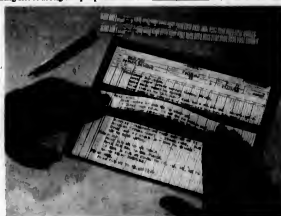
Circular Slide Rules

Four new circular slide rule devices have been designed to convert hexadecimal to decimal, octal and binary to decimal and vice versa. IBM 1401-1440-1460 machine language addresses to decimal number addresses, and IBM 7080 machine language addresses to decimal number languages. Computation Aids Co., 6808 26th Ave. N.E., Seattle, Wash. 98115.

Tape Splicer

A new paper tape splicer, the PCA Thermopress, will splice 5, 7, and 8 channel paper tape with

New Products



New instructions are inserted in a Programaid holder.

minimal overlap and increased thickness. Tape ends are trimmed by a built-in guillotine, then moistened; the two ends are aligned on the splicer bed with an overlap of one character position. Application of heat and pressure gives an even bond. Jay Smith, Inc., 292 State St. E., Westport, Conn. 06880.



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Honeywell Develops Process for Making Disk Packs That Eliminates Dependence on Outside Suppliers

WELLESLEY HILLS, Mass. — Two critical and essential processes in the manufacture of disk packs — blending the special coating material and applying the material to the disk surface — have been refined by Honeywell's Electronic Data Processing Division.

"Development of these methods and of a more durable magnetic iron oxide coating material means we no longer must depend on outside firms for this important phase of our disk pack manufacturing work," said Allan L. Rudell, vice president and assistant general manager.

"Our disk packs now meet or exceed industry standards for smoothness, durability, recording ability, and long life," he added. The extremely hard recording surface not only prolongs the life of the disk but also reduces the possibility of damage during repetitive use.

Urban League Sponsors an EDP School

LOS ANGELES—An EDP training center for disadvantaged residents has been established by the Greater Los Angeles Urban League with the help of the Bank of America Foundation and IBM. The Data Processing Training Center, located at 7226 Figueroa St., is located in a former Bank of America data processing facility recently renovated for the project.

The center will offer classes in computer operations, basic programming, and keypunch techniques.

"The fundamental reason for the center and its training programs is to qualify disadvantaged residents for employment in a rapidly growing area of opportunity," said Dr. Frank L. Stanley, Jr., Urban League executive director.

"Only the most needy, who otherwise could not afford such training, will be eligible for the program," Stanley said. During its first six months of operations, the center is expected to train 50 people and to help place them in jobs.

"Eventually, we hope that a minimum of 250 people a year will receive instruction at the center," Stanley said.

The Urban League is responsible for selecting candidates for training, providing counseling and administrative services, and assisting graduates in locating jobs. The foundation has provided the facilities for the center and underwritten the expenses of maintaining the building. IBM has supplied the center's data processing equipment and course materials. It also will provide four instructors.

Equipment will include an IBM computer system, including a card reader-punch, a printer, tape and disk drives, and control units. Sixteen other machines used in data processing operations—13 keypunches, a verifier, a sorter, and a collator—also will be available to the students.

First Course Started

The center's first class began last month with 12 students learning to use keypunch machines.

Computer operator and programming classes will start this month. The six week computer operator course will be offered to 12 students at a time, and programming classes, running 12 weeks, will be made up of 16 students.

All classes will be taught on the

basis that the students have had no previous knowledge of the subject, with the exception that keypunch students must have basic typing skills.

"Class schedules will closely match the hours of a regular, full time job," Stanley said. "Students will attend classes from Monday through Friday, and class hours will be geared to the hours observed in thousands of

offices. Except for reviewing course material outside of normal class hours, little homework will be required."

The three participating organizations hope eventually to make the center self-sustaining. The Urban League plans to assume the primary instruction requirements, using some of the center's own graduates, by the end of the project's first year.



Instructors John Adams and Yvonne Jackson give keypunch instruction to students Valma Runnels and Dwayne Williams at the new training center.

Control Data Institutes Accredited

MINNEAPOLIS, Minn.—Control Data Institutes in Dallas and Detroit have been accredited by the National Association of Trade and Technical Schools.

Accreditation, in addition to assuring that the schools have met

rigid standards, means that students may now apply for federally insured loans under the National Vocational Student Loan Act. These are federally subsidized, low interest, long term loans.

University Center Serves 38 Colleges

RESEARCH TRIANGLE PARK, N.C.—A large scale computer at Triangle University Computing Center, linking the Duke, North Carolina, and North Carolina State campuses, will start the new school year working on problems from 35 other colleges and universities in North Carolina.



Dr. Carl M. Pines, Jr., assistant professor of physics at Duke, studies bubble chamber photos projected onto the table via the mirror above. Laboratory assistant Kathy Elder converts data on unusual nuclear particle paths into digital form. This data is then processed by computer to reduce the data into meaningful form for further study by nuclear physicists.

Problems will be fed into an IBM 360/75—one of the largest computers installed for general educational use—by telephone lines from campuses as far as 300 miles away.

Jointly established 30 months ago by the three universities under a \$15 million National Science Foundation grant, the computer network has also now become a major factor in the introduction of computing into the curriculums of North Carolina colleges.

State Sponsorship

The North Carolina Computer Orientation Project, sponsored by the State Board of Higher Education, offers computing service and technical assistance to over 100 eligible institutions of higher learning.

When the fall semester peak is reached, the center expects to handle as many as 3000 jobs a day. The bulk of the workload will come from the three universities, relayed from smaller scale computers on each campus.

Morris S. Davis, president and director of the center, said, "System performance has already confirmed that cost sharing a computer can provide a number of economic and technical advantages to schools."

Large Scale Benefits

The availability of an extremely high performance computer—practical only because the three universities share its costs—has:

- Attracted several top educators, scores of outstanding graduate students, and millions of dollars in new grants at each campus for research projects which would be impractical or impossible using smaller, less powerful computers.

- Made it possible to incorporate computer science, now considered an educational necessity, into virtually any logical subject area, exposing broad cross-sections of students on each campus to the techniques and advantages of large scale computing.

- Strengthened cooperation in the data processing operations of the three schools to the point of establishing a common computer program library that eliminates time consuming duplication and generally speeds the educational research process at all three schools.

For the small schools on the network, the shared computer is a practical way of obtaining computer service on their campuses.

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Computer Predicts Football Winners

ATLANTA — A computer will take a mathematical look at the nation's college football teams this season and predict winners and point spreads for each week's top 30 games.

The Honeywell Model 120 computer system at Cox Broadcasting Corp.'s WSB-TV took on the job for the first time last season and correctly predicted the winning team 72% of the time — 337 correct predictions out of 471 games.

"That wasn't bad," said W. Dan Clay, data processing manager at WSB-TV, "but I'm sure the computer will do a better job this season."

Better Data File

"For one thing, we're starting with a better data file. Last year we started with the opinions of sports editors. This year we're starting with statistics. I should think the computer will be able to run about 80 to 85 per cent accurate this season."

The Honeywell computer displays its predictions on a CRT. This is filmed with commentary by WSB-TV Sports Director Carl Snell and appears on the station's Thursday evening news broadcast.

The predictions are for the upcoming weekend round of games. The films are sent by air express to other Cox television outlets: WHIO-TV, Dayton, Ohio; WSOCTV, Charlotte, N.C.; WUCV-TV, Pittsburgh; and KTVU, San Francisco.

Popular Project

"We got a tremendous amount of mail on this project," Snell said. "People tell us they enjoy matching their predictions against the computer."

WSB-TV compiled the data file for its computer last season by asking sports editors in several large cities to rank the nation's top teams. The first predictions were largely based on those rankings.

"At first," Clay said, "the computer was right only about 60 to 65 per cent of the time. After all, we were working from opinion. But as the season progressed and we were able to compile hard statistics, the predictions were correct 80 to 85 per cent of the time."

By the end of the season, the computer was reviewing hundreds of scores to make each prediction.

"It scanned the records and scores of the two teams plus the record of all their opponents' opponents," Clay said.

The computer also considered such intangibles as home field advantage, by compiling data on how each team has fared at home for the past four years.

To start the new season, the computer ranked each team on the basis of last year's record, including such factors as the number of returning lettermen.

Computer Triumphs

The Honeywell computer scored several triumphs last year in the face of human skepticism.

It predicted Houston would wallop Idaho by 67 points. Eyebrows were raised, but Houston won by 71 points. The computer predicted mighty Notre Dame would squeak by Miami by only two points. Eyebrows were raised again, but the Irish won — by only two!



Consumer taste in Christmas cards, such as the one being painted by the Hallmark artist, can now be predicted by the company's computer system.

Information on Sales of Greeting Cards Used to Predict Customer Preferences

KANSAS CITY, Mo. — The moods and manners by which Americans observe their holidays will be recorded in a data bank here beginning this month.

Donald J. Hall, president of Hallmark Cards, Inc., said IBM 360/65 has been purchased and linked to existing computers. The company will begin to feed into it descriptions of 14,000 cards and related products displayed and sold in 20,000 retail stores.

For the first time, the nation's choices of Christmas cards, Valentines, Easter greetings, Father's and Mother's Day cards, Halloween and Thanksgiving sentiments will be catered to by computerization. The company's greetings for birthdays, anniversaries, and other such personal occasions not linked to a particular season have been electronically recorded and selected since the early 1960s.

The firm processes more than 250,000 wholesale sales of nonseasonal merchandise daily. Working off reorder tickets received from retailers all over the nation, the computers are programmed to select the greeting card most desired by the public from the company's inventory, pulling from its memory not only national preferences but also tak-

ing into account regional variations of taste and even neighborhood ethnic and religious characteristics affecting card purchases.

Tailored to Retailer

The program is tailored so each dealer's likes and dislikes can be considered. For instance, if a dealer dislikes cards featuring smoking or drinking, the computer will see to it that he doesn't receive any.

Christmas order planning, a meticulous chore which previously resulted in months of tedious work for the firm's sales force of more than 700 men, can be accomplished by the Model 65 computer in less than two days, Hall said.

Even more important, the computer can play a better order for the dealer, he said.

"The computer can see the entire line, evaluate it in terms of what business the dealer did in previous years, and select the right products tailored for each individual dealer, in the right proportion," he said.

Aside from the obvious benefits in planning and filling orders, computerization provides Hallmark researchers with an uncanny insight into fashion trends and moods.

It was the computer, for instance, that picked out a twin in consumer preference for "hot" colors and paved the way for the company's highly successful promotion of paper dresses and paper party units in dazzling color combinations.

Charmers, a group of informal greeting cards featuring breezy sentiments ("Have a bright and breezy, take-it-easy, happy birthday!") also came about because the computer noticed a significant preference in the marketplace for something away from four line and eight line verse.

Reach Dealers Before Cars

Computer Speeds Printing of Manuals

FLINT, Mich. — By using a computer, Buick this year was able to prepare 41,000 copies of its 1300 page service manual for the 1969 cars in weeks instead of months. Biggest benefit: the manuals were up to date for the first time.

The manual details not only 1969 model service procedures but is a guide to make-ready procedures for customer deliveries.

Buick achieved phenomenal time savings in the manual's production by making extensive use of computer equipment in compiling service data, editing, revising data, and specifying type and layout.

Buick is probably the first automotive company to make such use of computers in preparing service manuals, according to Thomas Flouche, Buick's general service manager. Typesetting and layout for previous manuals usually started in June, ran through late August, and required extensive distribution of supplemental bulletins since the long production process did not permit inclusion of late additions and changes.

Flouche said concentrated efforts for a quicker and better means for producing service manuals got underway about four years ago.

The first breakthrough came

last year, he said, when a 360 page Opel Kadett service manual for 1968 models was produced through extensive use of computers. It success led to further refinements in the procedure and publication of the 1969 Buick service manual.

This year all data, text, and type specifications were transmitted by wire from a single jobbing in Flint to a computer in Cleveland. The computer then produced magnetic tape which was flown to Long Island and fed into a photo-composing machine which set all type for the manual at speeds up to 10,000 characters a second.

About a week was required for the cutting and pasting process of producing keylines from which press materials were prepared. Photographic and final proof, collation, and binding were accomplished in a matter of days instead of the weeks required in previous years.

This new computer process permitted incorporation of 11th hour changes and additions which under former methods could not have been incorporated into the final manual because of time limitations.

7070/74, 7080, 7094 FOR SALE

IPS has for sale and delivery in the new future several strictly-processed IBM 7000 series systems. A 7074 10K with 7 729 V1 (90K) tape units can be delivered January 1st. Available for immediate delivery is a very reasonably-priced 7070 10K without tape. Also for immediate delivery is a 7080 160K system without tape. For an installation requiring a powerful scientific system, a 7094-1 with 13 729 V1's and V's is available Jan. 1, 1969. The 7094 also has a 1401 4K I/O system available as an option. Please call or write for specifications and prices.

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CLEVELAND - The St. Louis meeting of the Systems & Procedures Association later this month may be the last international meeting under the present setup. The association is in the process of voting on whether to change its name, and to make

sweeping changes in its constitution. Before the St. Louis meeting convenes Oct. 20, the results of the voting are expected to be known.

75% Vote Needed

If the reorganization is

approved by 75% of the eligible voters, the name of the association will be changed, the various chapters will have uniform membership criteria for the first time, and the international headquarters will be able to mount an organized membership campaign in the industry. Previously this has not been possible because each of the 109 chapters of the SPA has been able to set its own criteria for membership and international headquarters has been unable, as a result, to solicit or accept memberships. In fact, a number of the society who was moved by his firm might find himself unacceptable to the chapter in his new area.

New Name Compromise

The suggested new name, "SPA - the Association for Systems Managers," is a rather unworldly compromise which attempts to preserve the goodwill in SPA while giving the association a face lift. However, the dramatic effect of any name change can be expected to assist the society in its goals to raise its membership by more than 150%. The present membership is about 8000. The goal under the proposed reorganization is 20,000.

Final Step in Chain

So far the proposals have been approved by two international boards for submission to the chapters. The current vote, restricted to the 109 division directors, may be the final step in the chain as each director has the power to vote for his particular chapters. The reorganization has been suggested by a management consulting firm, and its recommendations - although not its full report - have been explained to the membership in a brochure.

Seminar Given Twice

Whether it passes or not, the proposal can be expected to cause lively conversation at St. Louis during the 21st Internal Systems Meeting. These discussions may help people discover just where the society is heading.



Youth Shows the Way

Dr. Joseph Hilsenrath, director of the Office of Standard Reference Data, National Bureau of Standards, gets a lesson in data processing from Nat Kuhn, 10, of Princeton, N.J., a member of the Restorers. This Restorer, a group of young New Jersey students which has earned a national reputation for its work with computers, took part in a seminar last month at Worcester Polytechnic Institute, Worcester, Mass., sponsored by the National Bureau of Standards and MIT.

Siglan Names Wegner Chairman In New Group's First Election

NEW YORK - The ACM Special Interest Group on Programming Languages (Siglan) has elected Prof. Peter Wegner as chairman. Wegner is an associate professor of computer science at Cornell University, Ithaca, N.Y., and the author of several books dealing with programming languages.

Other Siglan officers elected include Vice Chairman Philip R.

Bagley, a consultant in computer applications in Philadelphia, and Secretary-Treasurer Carol A. Sampson, a senior systems analyst at Applied Data Research in Arlington, Va.

Since this is the first election held by the recently formed group, the new officers will serve an abbreviated term ending June 30. The normal term of office for Siglan is two years.

'Sirch' Searches Infrared Spectral Index

PHILADELPHIA - A fast computerized search system developed at the Dow Chemical Co. for the ASTM Infrared Spectral Index is now available from the American Society for Testing and Materials. The ASTM-DOW Infrared File Search System was developed for the spectroscopist to use in the laboratory without spending hours in tedious card handling chores or computer language.

The system, called Sirch, uses the IBM 1130 computer for rapidly searching the ASTM Infrared Spectral Index file which contains 92,000 entries. All of the entries are stored on three magnetic disks that can be searched at the rate of 1000 entries per second, for a total of less than 8 minutes for the entire file, including data entry and disk changes.

All input/output operations are program-aided on a console typewriter. For input, the spectro-

scopist types the data from an unknown spectrum directly into the computer. After the search, the output from the program is in the form of a typewritten list of the ASTM assigned serial numbers of spectra in the file which match the unknown spectrum.

Table Lookup Option for Mark IV Permits a Reduction in File Size

SHERMAN OAKS, Calif. - The first of several optional special features of the Mark IV File Management System has been announced by Information Systems.

The new feature, Table Lookup, said C. Gordon Uyt, Mark IV marketing manager, operates as an integral part of Mark IV. It allows a reduction in file size through the use of codes which are automatically translated to produce attractive reports. The previous time consuming task of creating tables and retrieval techniques for processing this type of information is greatly simplified by this special feature.

Mark IV, a proprietary software product of Information Systems, is a general purpose file management system now in use with IBM System/360 software in 60 installations in North and South America, Europe, Africa, and Asia.

"Orders are now being taken for Table Lookup for immediate delivery to Mark IV users," said Uyt.

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Want to Move Your Fortran Programs To New System? Well, 'Fivetran' Them!

ARLINGTON, Va.—If you have some Fortran programs around which you want to run on another computer system, you can now have them converted, and generally cleaned up in the process, for 50 cents a card.

Computing Technology Inc. which has started offering the service (called Fivetran), says that it can handle the Fortran II and IV compilers of 11 major computer manufacturers. The firm maintains details of the conversion problems involved with each of the various compilers, and uses both eyeball and a parameterized

translation program to prepare the documentation which goes back to the customer. Turn-around time is estimated at 72 hours.

Conversion and Bench Marks

The advantages of the system are basically the quick turnaround and the ease of the conversion. In some cases it may be useful to prepare bench marks for the various new systems under consideration, in others simply to allow the programs to be converted for use on more than one system. The output program is

always U.S.A. standard Fortran, so that conversion to later model machines will be considerably smoother.

Where Fivetrax Came From

Art Newfield of Computing Technology told *Computerworld* that naming the service had been difficult.

"We eventually came up with the name 'Fivetran,'" he said, "because, after all, it's what you do with Fortran programs when you want to bring them up to date."

Two Phone Line Tests Are Scheduled For Remote Meter Reading System

Special to Computerworld

MIDDLETOWN, Conn. — The Southern New England Telephone Co. has approved tests to be made early next year for remote meter reading, using the patented equipment of a private company, Ripley Corp. F.A. Rudolph, president of Ripley, said that the tests were to determine technical, rather than economic, aspects of the system.

Another set of tests, this time with AT&T and Bell Laboratory equipment, is also scheduled for early 1969, he said.

In the earlier tests, the Southern New England Telephone Co. will connect the telephone system to Ripley equipment through data couplers. The system will use an answer relay to connect the Ripley meter reading equipment to the telephone line during the read cycle. Rudolph said Ripley previously had successfully completed similar but much less extensive tests utilizing its own equipment exclusively.

In the AT&T test, Ripley equipment will be

connected to a more conventional telephone circuit without data couplers but with special central office telephone equipment that makes it possible to "read" the meter momentarily without ringing the subscriber's telephone. The initial phase of this test will use special telephone lines; if successful, the test will be expanded to use regular telephone lines to the homes of utility customers. The same Bell and AT&T equipment to be used by Ripley is also available to other companies, it was noted.

Rudolph said Ripley has found a substantially greater interest in remote meter reading among gas utilities than electric utilities because of the high cost of moving existing gas meters to the outside of a building.

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'Poverty School Opens in Ghetto To Teach EDP

(Continued from Page 1)

Although the manual dexterity of its first 40 pupils is excellent, the Institute has found it necessary to teach remedial reading to some, Mann said. The school also gives the students tips on how to dress and conduct themselves in a business atmosphere, he said.

The school's main selling point to industry will be the high performance standards set for its graduates, he said.

"A great majority of the current manpower requirements are in the computer input/output field," Mann said. "Our courses in computer input technology will provide a background to enable graduates to obtain positions as beginners."

In addition to keypunches, verifiers, and Teletypes, the school is using NCR data recorders and Sanders data display systems.

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BOX No. 4102

Standards Institute Decides To Consider PL/I Standard

Stanza to Computerworld
ARMONK, N.Y. — Armed with a copyrighted but unserialized PL/I manual, the U.S.A. Standards Institute last week decided

to consider whether PL/I should be recommended as a standard language. An ad hoc committee will be appointed.

The decision was based on a

recommendation by the X3.4.2C subcommittee. However, the subcommittee's report was disapproved by the full committee, and therefore was not circulated, according to Elliot C. Nohr of IBM, then chairman of the subcommittee. Copies of the report allegedly have been distributed to IBM marketing personnel [CW, Oct. 2].

Nohr told *Computerworld* that the report was disapproved because of disagreement over the criteria suggested for approving a standard PL/I.

"At the same time we were writing the report, other committees were changing the ground rules," he said. Nohr said Peter Ingerson of RCA was the head of the other committee.

Yet Another PL/I Manual

Nohr said that IBM has submitted to the institute a special PL/I manual, copyrighted and dated March 11, 1968, which contains parts of the language that IBM considers suitable for standardization. The manual, which covers areas already implemented, has not been otherwise published.

Asked when he felt PL/I standardization might be practical, Nohr said that he would not expect such action for two or three years.

"Standardization takes time," he said.

PL/I Is Rated Against Other High Languages

(Continued from Page 1)

the test programmers, including those used for testing the business applications, held mathematics degrees.) The ability to modify statements and to handle complicated logic also were rated as superior.

Deficiencies included the difficulty of learning the language, its unsuitability for nonprofessional programmers, and its relationship with other languages.

There was almost complete unanimity about the difficulty of learning the language. Both the programmers and the analysts pointed out the comparative simplicity of the Cobol and Fortran statements, their greater directness, and their features for handling business and scientific problems respectively. One commented that the many additional features of PL/I "tended to confuse the situation." Similar remarks were made by the programmers who compared PL/I with Jovial.

Cobol Better for Payroll

The study found that for ordinary dollar and cents operations, as verified by a payroll company, PL/I was inferior to Cobol in almost every way. However, problems were involved when writing a Cobol run for each work as an input edit, verifying fields as being alphabetic, etc. Here the PL/I was in some ways superior, with the mathematically trained programmer reporting in disagreement with some of their opinions after noting that these contradicted their earlier reports.



The water level in this goldfish tank is regulated by Honeywell's new industrial control computer system. Honeywell says engineers without programmer training can write process control programs for the system using a high level language with control functions.

Now - Standard Software For H'well Process Control

FRAMINGHAM, Mass. — Tim Cronin, marketing vice president for Honeywell's Computer Control Division, presented a new computer here last week and explained that it was for engineers who had experience in process control, but not in computer programming. The new system, called the Series 16 Industrial Control System, was the first process control system which a vendor had supplied with standard, home grown software, he said.

The reason for the innovation, he said, was because the shortage of process control engineers who are also programmers had prevented the industry from achieving its targets in the past.

In 1959, he said, it had been estimated that 1965 would see over a thousand industrial control systems in operation — but in practice, the industry fell short of this figure by 60%. As a result all the computer companies involved lost money, he said.

The reasons for the failures, he said, were the lack of willingness of computer manufacturers to take complete responsibility for

the installations, and costs (programming often exceeded the cost of computing equipment), which were often exorbitant.

"He felt the situation was still unsatisfactory with the majority of systems going into the few areas where expertise had developed. 'The power and petrochemical industries account for about 60% of all existing systems,' he said, 'the power industry because it shared its know-how among its members, and the petrochemical industry because it was willing to hire qualified, experienced, and expensive manpower to do the job.'"

Table Programming

By contrast, the new Series 16 line was specifically designed to reduce the software problem. By simply filling in tables, he said, a process engineer can "program" a 200 loop system in as little as two weeks. A real-time Fortran system also is available for custom programs. More software packages — including application packages for specific industries — are expected later.

Preliminary Data Released On 'World Wide' Systems

WASHINGTON, D.C. — The preliminary specifications for the \$150 million World Wide Military Command and Control System (WMCCCS) were issued to about 50 potential vendors last week, as forecast by *Computerworld*.

The specifications showed that a considerable amount of rethinking to obtain real competition for these massive procurements had taken place, and that more changes were being contemplated. However, Col. Raymond Jones of the Air Force Electronics System Division told *Computerworld* that currently the concept of "prime contractor" rather than segmented contracts was still firm policy.

He also said that as a result of conversations with manufacturers over the past few months, he was convinced that the requirement for the provision of a Jovial compiler would not make the specifications too restrictive. Apparently a number of manufacturers are seriously contemplating providing compilers although only IBM, GE, and Philco-Ford are publicly known to be working on such compilers.

The use of live benchmarks during the selection process, which has been attacked by Bryant Computer Products as the cause of restrictive bidding, retained as part of the specifications.

University Computing Co. Buying a Common Carrier

(Continued from Page 1)

named president of the new subsidiary, Sy Joffe is executive vice president, and Welford A. Berg is vice president of operations. Microwave Transmission's initial technical staff of 25 will operate from three regional offices in Dallas, Los Angeles, and Washington, D.C.

Earlier Plan Dropped

University Computing has been trying to get into the communications business for some time and made a tender offer in May of \$44 per share for 750,000 shares — nearly 10% — of Western Union's outstanding common stock.

While the company said at the time that it viewed the move as "an investment," many Wall Streeters saw it as the first step in a takeover.

UCC, however, ran into opposi-

tion and subsequently withdrew its offer when Western Union began talking merger with Computer Sciences Corp. [CW, June 5].

The Computer Sciences-Western Union talks were subsequently broken off [CW, Aug. 14], apparently because American Telephone & Telegraph Co. threatened to suspend negotiations to sell its teletypewriter service (TWX) to Western Union. The Federal Communications Commission had recommended that TWX and Western Union's similar Telex service be combined. Talks began in 1966.

University Computing, commenting on the breakup of Computer Sciences-Western Union talks, Aug. 5, said that it had no further interest in Western Union, but was planning to create its own common carrier data network.

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